

54977/B/1

54978/B

54979/B

W. A.

H. A.



John Phillips, F.R.S.
St. Mary's Lodge.
York.

29/27

Marked 42

12/1/11

THE
PLAGUE
AT
MARSEILLES
CONSIDER'D:

With REMARKS upon the PLAGUE in General, shewing its Cause and Nature of INFECTION, with necessary Precautions to prevent the spreading of that DIREFUL DISTEMPER. Publish'd for the PRESERVATION of the People of GREAT-BRITAIN.

Also some Observations taken from an Original Manuscript of a Graduate Physician, who resided in LONDON during the whole Time of the late Plague, *Anno* 1665.

By RICHARD BRADLEY, F. R. S.

The FOURTH EDITION.



L O N D O N :

Printed for W. MEARS at the *Lamb* without Temple-Bar. 1721.
Price 1 s.

PLAGUE

MAR 21 1892

CONFIDENTIAL

For the purpose of the
present investigation
the following information
is being furnished
to the
Department of Health



to the
to the
to the
to the

Nature
to the
to the
to the
to the

to the
to the
to the
to the
to the



T O

Sir ISAAC NEWTON

President of the Royal Society, &c.

S I R,



O Act under Your Influence, is to do Good, and to Study the Laws of Nature, is the Obligation I owe to the Royal Society, who have so wisely placed Sir *Isaac Newton* at their Head.

DEDICATION.

The following Piece, therefore, as I design it for the Publick Good, naturally claims *Your* Patronage, and, as it depends chiefly upon Rules in Nature, I am doubly obliged to offer it to the President of that Learned Assembly, whose Institution was for the Improvement of Natural Knowledge.

I am, Sir

With due Respect,

Your most obliged,

Humble Servant,

R. BRADLEY.



P R E F A C E.



HERE would be little Occasion for a Preface to this Treatise, if the last Foreign Advices had not given us something particular relating to the Pestilence that now rages in the South Parts of France ; and what may more particularly recommend these Relations to the World, is, because they come from Physicians, who resided at the Infected Places.

The

The Phyfician at *Aix* gives us the following Account.

The Contagious Distemper, which has become the Reproach of our Faculty here for above a Month past, is more violent than that at Marfeilles; it breaks out in Carbuncles, Buboes, livid Blisters, and purple Spots; the first Symptoms are grievous Pains in the Head, Consternations, wild Looks, a trembling Voice, a cadaverous Face, a Coldness in all the extreme Parts, a low unequal Pulse, great Pains in the Stomach, Reachings to Vomit, and these are follow'd by Sleepiness, Deliriums, Convulsions, or Fluxes of Blood, the Forerunners of sudden Death. In the

the Bodies that are open'd, we find gangrenous Inflammations in all the lower Parts of the Belly, Breast and Neck. Above fifty Persons have died every Day for three Weeks past in the Town and Hospitals. Most of them fall into a dreadful Phrenzy, so that we are forc'd to tie them.

The other is a Letter from a Physician at Marseilles, sent to John Wheake, Esq; who was so kind to give me the Abstract.

Marseilles Sept. 15. 1720.

Sir,

I Arriv'd here the 8th, and enter'd the Gate of *Aix* which leads to the *Cours*, which has always been esteem'd one of the
most

most pleasant Prospects in the Kingdom, but that Day was a very dismal Spectacle to me ; all that great Place, both on the Right and Left, was fill'd with Dead, Sick, and Dying Persons. The Carts were continually employ'd in going and returning to carry away the Dead Carcasses, of which there were that Day above four Thousand. The Town was without Bread, without Wine, without Meat, without Medicines, and in general, without any Succours.

The Father abandon'd the Child, and the Son the Father ; the Husband the Wife, and the Wife the Husband ; and those who had not a House to themselves,

selves, lay upon Quilts in the
 Streets and the Pavements; all
 the Streets were fill'd with Cloaths
 and Household - Goods, strew'd
 with Dead Dogs and Cats, which
 made an insupportable Stench.
 Meat was Sold at 18 to 20 *Sous*
per Pound, and was only distri-
 buted to those that had Billets
 from the Consuls: This, Sir,
 was the miserable State of this
 City at that Time, but at present,
 Things have a better appearance;
 Monsieur *le Marquis de Langeron*,
 who Commands here, has caused
 the Dead to be Buried, the
 Cloaths and Goods to be burnt,
 and the Shops to be open'd, for
 the Sustenance of the Publick.

x P R E F A C E.

Two Hospitals are prepar'd where they carry all the Sick of the Town, good Orders are daily re-establish'd, and the Obligation is chiefly owing to *Monfieur de Langeron*, who does Wonders. However, there is not any Divine Service Celebrated, nor are there any Confessors. The People die, and are buried without any Ceremonies of the Church; But the Bishop, with an undaunted Courage, goes thro' the Streets, and into Publick Places, accompanied with a Jesuit and one Ecclesiastick, to Exhort the Dying, and to give them Absolution; and he distributes his Charity very largely. The Religious Order have almost all perish'd, and
the

the Fathers of the Oratory are not exempt ; it is accounted, that there have died 50000 Persons. One thing very particular is, that Monsieur *Moustier*, one of the Consuls of the City, who has been continually on Horseback ordering the Slaves who carried away the Dead in Carts, or those that were Sick, to the Hospitals, enjoys his Health as well as he did the first Day he began ; the Sickness seems at present to abate, and we have the Satisfaction to see several whom we took under our Care at the Beginning of the Sickness, promise fair towards a Recovery. The Sickness however, is of a very extraordinary Nature, and

xii P R E F A C E.

the Observations we have in our Authors, have scarce any Agreement with what we find in this : It is the Assistance of Heaven we ought to implore, and to wait for a Blessing from thence upon our Labours.

I am, &c.

We may observe, that the Contagion now spreading it self in Foreign Parts, has nearly the same Symptoms that were observ'd in the late Plague at London ; so that what Medicines were then used with good Success, may direct not only the People of England in the way of Practice, if God Almighty should please to afflict us
with

with that dreadful Distemper, but be serviceable likewise to the Infected Places abroad. There is room enough to hope, the approaching Cold, which we naturally expect at this Season, may prevent its spreading amongst us for some Months, 'till the Air begins to warm; but the Seeds of that Venom may be brought over in Merchandizes even in the coldest Months, and according to the Nature of Insects will not hatch, or appear to our Prejudice, 'till the hotter Seasons. For to suppose this Malignant Distemper is occasion'd by Vapours only arising from the Earth, is to lay aside our Reason, as I think I have already shewn in my New Improvements of Planting, &c. to which my Reader may refer. I

I suppose there may be such Persons in the World who do not agree with the Hypothesis I have laid down in the following Sheets, altho' many Learned Authors have supported it ; and again, I expect others to Except against the Concise way I have taken, in writing upon a Subject, which at this time ought to be set in the plainest Light ; but as I found the Danger of Pestilence spreading it self more and more every Day, a true Lover of his Country could not be easie without giving the Publick some Hints to prevent its dismal Effects, and at the same time to engage the Learned to write upon such an Occasion.

And it is with Pleasure I observe, that since the former Editions

ons of this small Tract has been made publick, our Learned Physicians are dispos'd to consider the necessary Means to prevent (as far as in them lies) the spreading of this Calamity, and justly deserve the favour of the Publick.

For my own part, I can only say, that the short time I had to put this Work together, would not allow me to give it with that exactness, that I would have done, if I could have had more Leisure.





THE
PLAGUE
AT
MARSEILLES
CONSIDER'D, &c.



HE Deplorable Condition of the *Marseillians*, and the Danger that all the Trading Parts of *Europe* are now in, of being Infected by the Plague which rages in the *South* Parts of *France*, and every Day spreads it self more and more over the Neighbouring Countries, gives me occasion to Publish some Papers which would never have otherwise appeared in the World.

When I consider the melancholy Circumstances of the People at *Marseilles* and other infected
B Places,

Places, how they are now divested of Relief, and brought into that miserable State, that even every Man is terrified at the Approach of his dearest Friend, and the very Aspect of our Neighbours strike such Horror and Confusion in us, as if they brought our Death and Destruction with them; it is then surely time for every one to contribute all that in him lies to prevent the Progress of so *direful a Calamity*.

The good Counsels of our Nation, therefore, to prevent as much as possible the Infection which might be brought among us by Merchandizes coming from Infected Places, have wisely order'd strict Quarentine to be perform'd, before either the Sailors or Goods can be brought ashoar.

The Neighbouring Nations of Trade, have follow'd our Example, but the *Hollanders* in an extraordinary manner, have even order'd the Burning the very Ships and Goods coming from *Marseilles*, and have been so cautious, as to suffer none of the Passengers to come on Shoar, without first being disrob'd of all their Apparel, and even to be well wash'd with Sea Water, and then likewise to perform Quarentine in a little Island, remote from the Inhabitants. I could mention many Relations we have had, of the Sufferings of the poor People belonging to *Marseilles*, who to avoid the dismal Consequence of the Plague, have flown for Refuge into the Country, and have either been starv'd to Death, or Murder'd by the Country People; but yet we find, that notwithstanding all these Precautions,

that

that Pestilence continues to destroy as much as ever, and makes it Advances every Day more towards us.

It is computed, that about 60000 are Dead of the Plague at *Marseilles*, and that there are now (October 20. N. S.) above 14000, Persons left in that Town, including 10000 Sick; and at *Aubagne*, out of 10000 who retir'd thither from *Marseilles*, above 9000 are Dead.

On this sad Occasion of the Ruin of *Marseilles* especially since there is talk of Burning that Town, it may not be unseasonable to give an Account of it.

Marseilles is one of the most considerable Cities in *France*, and the most Populous and most trading Town of all *Provance*. It is so Ancient, that it is reckon'd to have been Built upwards of Six Hundred and Thirty Years before the Birth of our Saviour. It was once a very flourishing Republick; and its University was in such Esteem, as drew Students thither from all Parts of *Europe*.

Marseilles is situate at the Foot of a Hill, which rises in the Form of an Amphitheatre in proportion to its Distance from the Sea. The Harbour is Oval, and bounded by a Key about fourteen hundred Paces long, upon which stand the handsomest Houses in the Town. It affords a very delightful Walk, Part whereof is taken up in the Day time by the working Gally-Slaves Stalls, where you may furnish your self with

Cloaths

‘ Cloaths and other Neccessaries; the Entrance of
 ‘ the Harbour is shut up by a Chain supported at
 ‘ certain Distances by three Stone-Pillars; so
 ‘ that only one large Ship can pass at a time,
 ‘ tho’ the Haven will contain about Five hundred.
 ‘ And hither are brought all sorts of Commodi-
 ‘ ties from all Parts of the known World.

‘ The Cathedral Church, call’d *Notre Dame*
 ‘ *la Majeure*, whereof *S. Lazarus* is Patron, is
 ‘ very Solemn. It was formerly a Temple dedi-
 ‘ cated to *Venus*, or to *Diana* of *Ephesus*. Its
 ‘ Form is Irregular; but it was not thought pro-
 ‘ per to add or diminish any thing. There re-
 ‘ main severall large Columns, on which stood
 ‘ the Idol. The Treasure of this Church is very
 ‘ Rich. Here you see the Head of *S. Lazarus*,
 ‘ that of *S. Connat*, a Foot of *S. Victor*, and
 ‘ many other Relicks. Near the Cathedral, is a
 ‘ Chappel built upon the Spot where (the *Mar-*
 ‘ *seillians* tell you) *S. Mary Magdalen* preached
 ‘ the Gospel to the Idolaters, as they came out
 ‘ of the Temple.

‘ *Notre Dame des Acoules* is also a fine large
 ‘ Church, which was formerly a Temple sacred
 ‘ to the Goddess *Pallas*. In that of *S. Martin*,
 ‘ which is Collegiate and Parochial, is preserv’d
 ‘ a Silver Image of the blessed Virgin, five Foot
 ‘ and half high, the Crown and Ornaments where-
 ‘ of are very rich. The Church of *S. Saviour*,
 ‘ now belonging to a Nunnery, was anciently
 ‘ a Temple of *Apollo*. All these Places are so
 ‘ many Proofs of the Antiquity of *Marseilles*,

as well as two other Temples near the Port, with two Towers, viz. that of S. *John*, which is a Commandry of the Knights of *Malta*, and that of S. *Nicolas*.

The Abby of S. *Victor*, of the Order of S. *Benedict*, is situate at the Foot of the Citadel. It resembles a Castle, being encompass'd with Walls, and set off with Towers. At the Front of the Church are these Words address'd to S. *Victor*,

Massiliam verè Victor civesque tuere.

In a Chappel on one side of the Epistle, you see the Head of that Saint, in a Shrine of Silver gilt, finely wrought, which was given by Pope *Urban*, V. whose Tomb is on one side of the Choir ; there are many other Relicks in this Church. You then descend a large Stair-Case into the Church under Ground, where the Chapels visited by the Curious, are full of Holy Bodies. There they shew you the Tomb of S. *Eusebius*, and those of forty five Virgins who disfigur'd themselves to terrifie the Vandals who put them to Death. Here also you see St. *Andrew's* Cross entire, the Branches whereof are seven Foot long and eight Inches Diameter. In one of these subterraneous Chappels is a little Grotto, wherein S. *Mary Magdalen* (they tell you,) upon her Landing at *Marseilles* began to do Pennance. They add, that she Inhabited it six or Seven Years : Her Statue likewise is represented, lying at the entrance of
this

‘ this Grotto. There is also a rich Chappel of
 ‘ our Lady, wherein no Women are permitted
 ‘ to enter. This Order was made, upon the
 ‘ Vulgar Notion, of a Queen’s being struck Blind,
 ‘ who had the Temerity to venture into it.

‘ In *Marseilles* you observe likewise the Mo-
 ‘ nasteries and Churches of the *Carthusians*, the
 ‘ Monks of St. *Anthony*, the *Trinitarians*, *Ja-*
 ‘ *cobins*, *Augustins*, Barefooted *Augustins*, *Car-*
 ‘ *melites*, Barefooted *Carmelites*, *Cordeliers*, *Ob-*
 ‘ *servantins*, *Servites*, *Minims*, *Capuchins*, *Re-*
 ‘ *collects*, *de la Mercy*, *Feuillans*, *Jesuites*, Fa-
 ‘ thers of the *Oratory*, and of the *Mission*. There
 ‘ are also *Benedictine* Nuns, *Dominicans*, Nuns
 ‘ of S. *Clare*, *Capuchins*, *Carmelites*, *Bernardines*,
 ‘ *Urselins*, Nuns of the Visitation of Mercy, and
 ‘ of the good Shepherd or Repentance; and a
 ‘ Commandry of *Malta*.

‘ The Citadel of *Marseilles* is near the Port,
 ‘ extending its Fortifications to the Entrance of
 ‘ the same; and yet it commands the Town.
 ‘ The Key which lines this side of the Harbour,
 ‘ from Fort S. *Nicolas* to the Arsenal, is about
 ‘ fifteen hundred Paces long, and is adorned with
 ‘ handsome Ware-Houses and Dwelling-Houses:
 ‘ Here is the great Hospital for Sick Slaves,
 ‘ which was formerly the Arsenal before the
 ‘ New one was built. Six large Pavilions, as
 ‘ many main Houses, and a great square Place
 ‘ big enough to build several Gallies at a time in,
 ‘ form the Design of it. In this Place are two
 ‘ large Basons, as long and as deep as a Galley,

in each of which, when a Galley is ready to launch, they open a small Sluice which kept up the Sea Water;

This great Building makes one entire Front of the Port, three hundred Paces in Length; the Harbour of *Marseilles*, is thirteen hundred Paces long, and the Circumference about three Thousand four hundred and fifty Paces. The Streets of the old Town are long, but narrow; and those of the New are spacious, and well Built. The chief, is that they call *le Cours*, which is near forty Paces broad, in the middle of which is a Walk, planted with four Rows of young Elms, which, with the Keys, are the Places of publick Resort.

The Town-House which they call *La Loge*, is situate upon the Key over against the Gallies. Below is a large Hall, which serves the Merchants and Sea-faring Men for an Exchange; and above Stairs the Consuls, Town-Councillors, and others concerned in the Civil Administration have their Meeting. The most valuable Piece in this Building, is the City Arms in the Front, Carved by the famous *Puget*.

Marseilles seems still to retain somewhat of the ancient Government, of its four Courts, being divided into four Quarters, viz. *S. John*, *Cavaillon*, *Corps de ville* and *Blancaire*; each of which hath its Governors and other Officers. The *Porte Royale* is well Adorned, having on one side the Figure of *S. Lazarus*, and on the other, that of *S. Victor*. And in the middle is

‘ a Busto of *Lewis XIV.* with this Inscription
 ‘ over it, *Sub cujus imperio summa libertas.*

‘ The Town is encompass’d by good Walls,
 ‘ and a Tetragon which commands a Part of it,
 ‘ is the best of the two Citadels, and within Can-
 ‘ non Shot of a Fort call’d *Notre Dame de la*
 ‘ *Garde*, whither the Inhabitants frequently go to
 ‘ pay their private Devotion, and from whence
 ‘ they discover Ships at Sea at a great Distance.
 ‘ This Fort is built on the top of a Mountain,
 ‘ upon the Ruins of an ancient Temple of *Venus*,
 ‘ called *Ephesum*.

The Country about this City is low and open for two Miles, agreeably adorn’d with Villas, Vineyards, and Gardens of Fig-Trees, and Orange-Trees, with plenty of Water from a good Spring, which being divided into several Branches serves to furnish the City.

As to the Inhabitants, they are for the most part Poor and uncleanly, and chiefly Eaters of Fruit, Herbs, and Roots with such like meagre Fare, nor do they take any Pains to clean the Streets where the meaner Sort have their Habitation. Their Bread is very coarse and high priz’d; and perhaps what has principally contributed to the Progress of the Plague among them, was the great Numbers of those which Lodged together in the same House, as I shall explain hereafter; when I have examin’d the State of *London*, when it suffer’d by the Plague in the Year 1665.

London, at the time of the Plague, 1665, was, perhaps, as much crouded with People as I suppose *Marseilles* to have been when the Plague begun ; the Streets of *London* were, in the time of the Pestilence, very narrow, and, as I am inform'd, unpaved for the most part ; the Houses by continu'd Jetts one Story above another, made them almost meet at the Garrets, so that the Air within the Streets was pent up, and had not a due Freedom of Passage, to purifie it self as it ought ; the Food of the People was then much less invigorating than in these Days ; Foreign Drugs were but little in Use, and even *Canary* Wine was the highest Cordial the People would venture upon ; for Brandy, some Spices, and hot spirituous Liquors were then not in Fashion ; and at that time Sea-Coal was hardly in Use, but their firing was of Wood ; and, for the most part, Chestnut, which was then the chief Furniture of the Woods about *London*, and in such Quantity, that the greatest Efforts were made by the Proprietors, to prevent the Importation of *Newcastle-Coal*, which they represented as an unwholsome Firing, but, I suppose, principally, because it would hinder the Sale of their Wood ; for the generality of Men were (I imagine) as they are now, more for their own Interest than for the common Good.

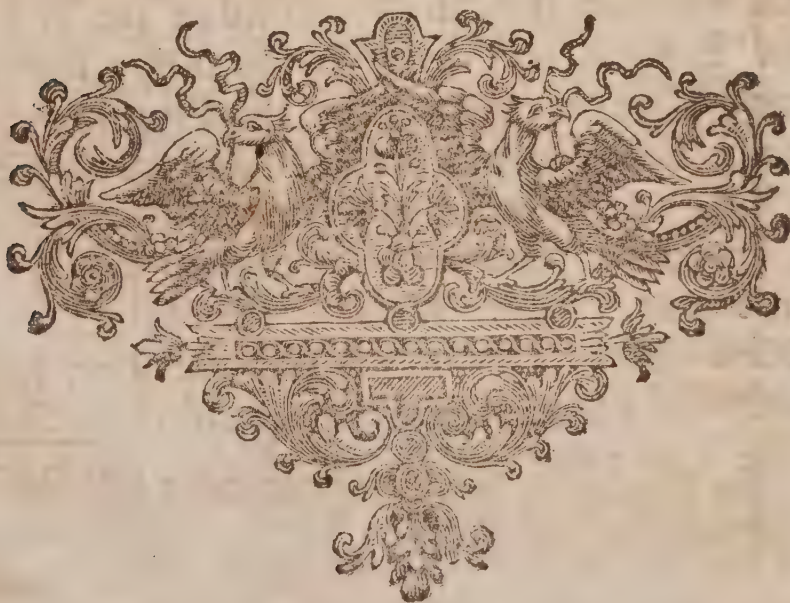
The Year 1665 was the last that we can say the Plague raged in *London*, which might happen from the Destruction of the City by Fire, the following Year 1666, and besides the Destroying the Eggs, or Seeds, of those poisonous Animals, that

C

were

were then in the stagnating Air, might likewise purifie that Air in such a Manner, as to make it unfit for the Nurishment of others of the same Kind, which were swimming or driving in the Circumambient Air : And again, the Care that was taken to enlarge the Streets at their Rebuilding, and the keeping them clean after they were rebuilt, might greatly contribute to preserve the Town from Pestilence ever since.

But it was not only in the Year 1665 that the Plague raged in *London*, we have Accounts in the Bills of Mortality, of that dreadful Distemper in the Years 1592, 1603, 1625, 1630 and 1636, in which Years we may observe how many died Weekly of the Plague, and Remark how much more that Distemper raged in the hot Months, than in the others, and serve at the same time as a Memorandum to the Curious.



A *TABLE*, Shewing how many Died Weekly, as well of all Diseases, as of the Plague, in the Years 1592, 1603, 1625, 1630, 1636; and the Year 1665.

Buried of all Diseases in the Year 1592.

	Total	Pla.		Total	Pla.
March 17	230	3	August 11	1550	797
March 24	351	31	August 18	1532	651
March 31	219	29	August 25	1508	449
April 7	307	27	Septemb. 1	1490	507
April 14	203	33	Septemb. 8	1210	563
April 21	290	37	Septem. 15	621	451
April 28	310	41	Septem. 22	629	349
May 5	350	29	Septem. 29	450	330
May 12	339	38	October 6	408	327
May 19	300	42	October 13	522	323
May 26	450	52	October 20	330	308
June 2	410	62	October 27	320	302
June 9	441	81	Novemb. 3	310	301
June 16	399	99	Novem. 10	309	209
June 23	401	108	Novem. 17	301	107
June 30	850	118	Novem. 24	321	93
July 7	1440	927	Decemb. 1	349	94
July 14	1510	892	Decemb. 8	331	86
July 21	1491	258	Decem. 15	329	71
July 28	1507	852	Decem. 22	386	39
August 4	1503	983			

The Total of all that have been buried is, 25886
Whereof of the Plague, 11503
Buried

Buried of all Diseases in the Year 1603.

		Total	Pla.			Total	Pla.
March	17	108	3	July	21	1186	917
	24	60	2		28	1728	1396
	31	78	6	August	4	2256	1922
April	7	66	4		11	2077	1745
	14	79	4		18	3054	2713
	21	98	8	Septemb.	25	2853	2539
May	28	109	10		1	3385	3035
	5	90	11		8	3078	2724
	12	112	18		15	3129	2818
June	19	122	22		22	2456	2195
	26	122	32		29	1961	1732
	2	114	30	October	6	1831	1641
July	9	131	43		13	1312	1149
	15	144	59		20	766	642
	23	182	72	Novemb.	27	625	508
July	30	267	158		3	737	594
	7	445	263		10	545	442
	14	612	424	Decemb.	17	384	251
<i>The Out Pa- rishes this Week were joined with the City.</i>					24	198	105
					1	223	102
					8	163	55
					15	200	96
					22	168	74

*The Total this Year is,
Where of of the Plague,*

37294
30561

Buried

Buried of all Diseases in the Year 1625.

		Total	Pla.			Total	Pla.
March	17	262	4	August	11	4855	4115
	24	226	8		18	5205	4463
	31	243	11		25	4841	4218
April	7	239	10	September	1	3897	3344
	14	256	24		8	3157	2550
	21	230	25		15	2148	1612
	28	305	26		22	1994	1551
May	5	292	30		29	1236	852
	12	232	45	October	6	833	538
	19	379	71		13	815	511
	26	401	78		20	651	331
June	2	395	69		27	375	134
	9	434	91	November	3	357	89
	16	510	161		10	319	92
	23	640	239		17	274	48
	30	942	390		24	231	27
July	7	1222	593	December	1	190	15
	14	1781	1004		8	181	15
	21	2850	1819		15	168	6
	28	3582	2471		22	157	1
August	4	4517	3659				

*The Total this Year is,
Whereof of the Plague,*

51758
35403

Buried

Buried of all Diseases in the Year 1630.

		Total	Pla.			Total	Pla.
June	24	205	19		23	274	57
July	1	209	25		30	269	56
	8	217	43	October	7	236	66
	15	250	50		14	261	73
	22	229	40		21	248	60
	29	279	77		28	214	34
August	5	250	56	November	4	242	29
	12	246	65		11	25	29
	19	269	54		18	200	18
	26	270	67		25	226	7
September	2	230	66	December	2	221	20
	9	259	63		9	198	19
	16	264	68		16	212	5

Buried in the 97 Parishes within the Walls,	2696
Whereof of the Plague,	190
Buried in the 16 Parishes without the Walls,	4813
Whereof of the Plague,	603
Buried in the 9 Out-Parishes in Middlesex and Surrey, and at the Pest-house,	3045
Whereof of the Plague,	524
Buried in Westminster,	566
Whereof of the Plague,	31

The Total of all the Burials this time, 10545
Whereof of the Plague, 1317
Buried

Buried of all Diseases in the Year 1636.

		Total	Pla.			Total	Pla.
April	7	119	2	July	7	215	81
	14	205	4		14	372	104
<i>This Week these Parishes were added: St. Mar- garet West- minster, Lam- beth Parish, St. Mary Newing- ton, Redriff Parish, St. Ma- ry Islington, Stepney and Hackney Pa- rishes.</i>					21	365	120
					28	423	151
				August	4	491	206
					11	538	283
					18	638	321
					25	787	429
				Septemb.	1	1011	638
					8	1069	650
					15	1306	865
					22	1229	775
					29	1402	928
April	21	285	14	October	6	1405	921
	28	259	17		13	1302	792
May	5	251	10		20	1002	555
	12	308	55		27	900	458
	19	299	35	November	3	1300	838
	26	330	62		10	1104	715
June	2	339	77		17	950	573
	9	345	87		24	857	476
	16	381	103	December	1	614	321
	23	304	179		8	459	167
	30	352	104		15	385	85

The Total of the Burials this Year, is 23359
Whereof of the Plague, 10400

Buried

Buried of all Diseases in the Year 1664.

		Total	Pla.			Total	Pla.
Decemb.	27	291		June	13	558	112
January	3	349			20	611	168
	10	394			27	684	267
	17	415		July	4	1006	470
	24	474			11	1268	725
	31	409			18	1761	1089
February	7	393			25	2785	1845
	14	461	1	August	1	3014	2010
	21	393			8	4030	2817
	28	396			15	5319	3880
March	7	441			22	5568	4227
	14	433			29	7496	6102
	21	365		September	5	8252	6978
	28	353			12	7690	6544
April	4	344			19	8297	7165
	11	382			26	6460	5533
	18	344		October	3		
	25	390	2		10		
May	2	388			17		
	9	347	9		24		
	16	353	3		31		
	23	385	14	November	7		
	30	399	17		14		
June	6	405	43				

We may observe from hence, that the Months *July, August, September, and October*, the Plague was at the greatest height, and even in those Months, all other Distempers had greater Power over Human Bodies than in the others. When I consider this, I cannot help taking Notice, that in those Months we have our chief Fruit Seasons, and when it happens that there has been a Blight in the Spring, or the Summer has not given our Fruit due Maturity, I suppose that the Habit of the Body is so disposed as to receive Infection more readily, than in Years that either afford us little, or else very Ripe Fruit.

Again, in those warm Months, I find that we have vast Varieties of the smaller kinds of Insects floating in the Air, and it is a thing constant, that every Insect from the greatest to the smallest has its proper *Nidus* to hatch and perfect it self in, and is led thither by certain Effluvia which arise from that Body which is in a right State for the preservation of it. In the Blight of Trees we find, such Insects as are appointed to destroy a Cherry Tree, will not injure a Tree of another Kind, and again, unless the Leaves of some Trees are bruised by Hail, or otherwise Distemper'd, no Insect will invade them; so in Animals it may be, that by ill Diet the Habit of their Body may be so altered, that their very Breath may entice those poisonous Insects to follow their

D

way,

way, 'till they can lodge themselves in the Stomach of the Animal, and thereby occasion Death. We may likewise suppose that where these Insects have met with their appointed Nests, they will certainly lay their Eggs there, which the Breath of the diseased Person will fling out in Parcels, as he has occasion to Respire; so that the Infection may be communicated to a stander-by, or else, through their extraordinary smallness, may be convey'd by the Air to some Distance.

It is observable, that all Insects are so much quicker in passing through their several Stages to the state of Perfection, as they are smaller, and the smallest of them are more numerous in their Increase than the others.

Two Years ago when the Plague was at *Amiens*, I pass'd by that Place, and then found the Contagion began to abate ('twas then about *October*, and the Rains began to fall) the People told me they were advised to eat Garlick every Morning to guard their Stomachs against Infection; but whether it was the Garlick, or the sudden alteration of the Season that was the occasion of the decrease of that Distemper, we shall examine in another Place; but we may Note, That all the Ground about that City is a Morass, so that there is no coming near it but by the Roads, which are Paved and mark'd out. This Marsh or Morass, as all others do in the Summer Season, produce vast Numbers of Insects

fects which are accounted unwholsome: But as some are of Opinion, it is rather a Noxious Vapour which occasions this Infectious Distemper, I shall mention my Opinion of such Vapours before I conclude.

In the Philosophical Transactions, N^o 8. we have the following Observations of Insects which are the Destroyers of Plants.

Some Years since there was such a swarm of a certain sort of Insect in *New-England*, that for the space of 200 Miles they poisoned and destroyed all the Trees of the Country; there being found innumerable little Holes in the Ground, out of which those Insects broke forth in the Form of *Maggots*, which turn'd into *Flies* that had a kind of Sting, which they stuck into the Tree, and thereby envenom'd and killed it.

The like Plague is said to happen frequently in the Country of the *Cossacks* or *Ukrani*, where, in dry Summers, they are infested with swarms of *Locusts*, driven thither by an *East*, or *South-East* Wind, that they darken the Air in the fairest Weather, and devour all the Corn of that Country, laying their Eggs in Autumn, and then dying; but the Eggs, of which every one layeth two or three Hundred, hatching the next Spring, produce again such a number of *Locusts*, that then they do far more mischief than before, unless Rains fall which kill both Eggs and Insects, or un-

less a strong *North* or *North-West* Wind arise, which drives them into the *Euxine* Sea: And it is very natural to suppose, that if the Winds have this Power over the larger sort of Insects; *i. e.* of moving them from one Country to another, the smaller kinds, which are lighter than the Air it self, may be interceptibly Convey'd as far as the Winds can reach.

Dr. Wincler, Chief Physician of the Prince Palatine, gives us the following Account of the Murrain in Switzerland, and the Method of its Cure, in a Letter to Dr. Slare, F.R.S. Anno 1682.

On the Borders of *Italy* a *Murrain* infested the Cattle which spread farther into *Switzerland*, the Territories of *Wirtemberg*, and over other Provinces, and made great destruction among them. The Contagion seem'd to propagate it self in the form of a *Blue Mist*, that fell upon those Pastures where the Cattle Grazed, insomuch that Herds have returned home Sick, being very dull, forbearing their Food, most of them would die away in twenty four Hours. Upon dissections were discovered large and corrupted Spleens, sphacelous and corroded Tongues, some had *Angina Maligna's*. Those Persons that carelessly managed their Cattle without a due respect to their own Health, were themselves Infected and Died away like their Beasts.

Having

Having had timely Notice of this *Lues* from our Neighbours, we made such Provision against the invading Disease, that very few of those who were infected by the Murrain died. Some impute this Contagion to the Witchcraft of three *Capuchins* in *Switzerland*. But the more learned believe it to proceed from some *noxious Exhalations* thrown out of the Earth by three distinct Earthquakes perceived here and in our Neighbourhood in the Space of one Year.

The Method of Cure for the Cattle.

As soon as ever there was any suspicion of the Contagion upon any one of the Herd, the Tongue of that Beast was carefully examined, and in case they found any *Aptha* or Blisters whether White, Yellow, or Black, then they were obliged to rub, and scratch the Tongue with a Silver Instrument (being about the breadth and thickness of a Six-pence, but indented on the sides, and having a Hole in the middle whereby it is fastened to a Stick, or Handle,) 'till it Bleed, then they must wipe away the Blood with new unwashten Linnen. This done, a Lotion for the Tongue is used, made of *Salt* and good *Vinegar*.

The *Antidote* for the diseased Cattle is thus described.

Take of *Soot*, *Gun-Powder*, *Brimstone*, *Salt*, equal Parts, and as much Water as is necessary
to

to wash it down, give a large Spoonful for a Dose.

After which we have a further Account of the same Contagion by the same Hand.

— I lately received an Account of two ingenious Travellers, who assured me the Contagion had reached their Quarters on the Borders of *Poland*, having passed quite through *Germany*, and that the Method used in our Relation preserved and cured their Cattle. They told me the Contagion was observed to make its Progress Dayly, spreading near two *German* Miles in twenty four Hours. This they say was certainly observed by many curious Persons, that it continually, without intermission, made progressive Voyages, and suffered no neighbouring Parish to escape ; so that it did not at the same time infect Places at great distances. They added, that Cattle secured at Rack and Manger, were equally infected with those in the Field. It were worth the considering, whether this Infection is not carried on by some volatile Insect, that is able to make only such short flights as may amount to such Computations : For the account of the Ancients concerning the grand *pestilential* Contagions, is very little satisfactory to this Age, who derive it from a blind Putrefaction, from the incantations of ill Men, or from the conjunction of inauspicious Planets.

The

The following Account we have from Dr. *Bernard Ramazzini*, concerning the Contagion among the Black Cattle about *Padua*, Translated from *Acta Erudit.*

In the Year 1712 a dreadful and violent Contagion seiz'd the *Black Cattle*, which, like an increasing Fire, could neither be extinguish'd nor stopt by any Human means.

This First was observ'd in *Agro Vincentino*, and Discover'd it self more openly in the Country, spreading every way, even to the very Suburbs of *Padua*, with a cruel Destruction of the Cows and Oxen. It was also in *Germany*, in many Places; and is not yet wholly conquer'd.

Of this Distemper, Dr. *Ramazzini* made a particular Dissertation; in which he inquir'd into the Causes of the Distemper, and what Remedies might be us'd, to put a stop to its violent Course.

It is evident, that this Distemper in Cows and Oxen was a true Fever, from the coldness of the Cattle at first, which was soon succeeded by a violent burning, with a quick Pulse. That this Fever was pestilential, its concomitant Symptoms plainly show, as difficulty of breathing, a Drowziness at the beginning; a continued Flux of a nauseous Matter from the Nose and Mouth, fetid Dung, sometimes with Blood, Pustules breaking out over the whole Body on the fifth or sixth

sixth Day, like the *Small-Pox*; they generally dyed about the fifth or seventh Day.

The Author tells us, that out of a great Drove, such as the Merchants bring yearly into *Italy* out of *Dalmatia* and the bordering Countries, one Beast happen'd to straggle from the rest, and be left behind; which a Cowherd brought to a Farm belonging to the Count *Borromeo*: This Beast infected all the Cows and Oxen of the Place where he was taken in, with the same Distemper he labour'd under; the Beast it self dying in a few Days, as did all the rest, except one only, who had a Rowel put into his Neck.

'Tis no strange thing therefore, if from the Effluvia, proceeding from the sick and dead Cattle, and from the Cow-Houses and Pastures where they were fed, and perhaps from the Cloaths of the Cowherds themselves, this Infection falling upon a proper Subject, should diffuse it self so largely. When therefore this subtle *venomous Exhalation* happens to meet with any of the Cow-kind, joining it self with the ferous Juices and Animal Spirits, 'tis no wonder it should disorder the natural Consistence of the Blood, and corrupt the Ferments of the Viscera; whence it follows, that the natural Functions of the Viscera are vitiated, and the requisite Secretions stopt. For

Dr. *Ramazzini* not only supposes, but asserts, that a Poison of this kind, rather fixes and coagulates, than dissolves the Blood: For
beside

beside the forementioned Symptoms accompanying the Disease, the Eye it self is a Witness; since the dead Carcases being open'd while they are yet hot, little or no Blood runs out; those Animals having naturally a thick Blood, especially when the Fever has continued so many Days. And he adds, that whether this Plague came first from the Foreign Beast, or any other way, it only had its Effect upon some Animal, in which there was the morbid Seminary or Ground prepared for it.

In the dead Bodies of all the Cattle, it was particularly observ'd, that in the Omasus, or Paunch, there was found a hard compact Body, firmly adhering to the Coats of the Ventricle, of a large Bulk, and an intolerable Smell: In other Parts, as in the Brain, Lungs, &c. were several Hydatides, and large Bladders fill'd only with Wind, which being open'd, gave a disagreeable Stink: there were also Ulcers at the Root of the Tongue; and Bladders fill'd with a Serum on the sides of it. This hard and compact Body, like Chalk, in the Omasus, the Author takes to be the first Product of the contagious Miasma. He adds a Prognostick, believing that from so many Attempts and Experiments, and the Method observ'd in the Cure of this Venom, at last a true and specifick Remedy will be found out to extirpate the poisonous Malignity wholly: He also expects some mitigation of it, from the approaching Winter and North Winds. He does not

E

think

think this Contagion can affect Human Bodies, since even other Species of ruminating Animals, symbolizing with the Cow-kind, are yet untouch'd by it; nor was the Infection taken by the Air, after the dead Bodies had been carefully Buryed.

As for the Cure of it: From the Chirurgical part, he commends *Bleeding*, burning on both sides the Neck with a broad red-hot Iron, making Holes in the Ears with a round Iron, and putting the Root Hellebore in the Hole, a *Rosel* or *Seton* under the *Chin*, in the *Dew-laps*; he also orders the *Tongue* and *Palate* to be often wash'd and rub'd with *Vinegar* and *Salt*.

He recommends the Use of *Alexipharmicks*, and specifick Cordials; and three Ounces of Jesuits Bark, infus'd in ten or twelve Pints of Cordial Water or small Wine, to be given in four or five Doses; which is to be done in the beginning of the Fever, when the Beast begins to be Sick. Or else two Drams of *Sperma-Ceti* dissolv'd in warm Wine. Again he prescribes *Antimonium Diaphoreticum*. Against Worms breeding, an Infusion of Quicksilver, or *Petroleum* and Milk is to be given. And lastly, as to the Food, he directs Drinks made with Barley or Wheat Flower or Bread, like a *Ptisane*, fresh sweet Hay made in *May* and macerated in fair Water. In the meantime the Cattle must be kept in a warm Place, and Cloath'd, daily making Fumigations in the Cow-Houses with
Juniper

Juniper Berries, Galbanum, and the like. As to Prevention, he enjoyns Care in cleaning the Stalls, and scraping the Crust off from the Wall; Care also is to be taken of their Food, the Hay and Straw not spoil'd by Rain in the Making; and he judges their Food ought to be but sparing: He likewise recommends currying, with a Comb and Brush; with Setons under their Chin, made with a hot Iron run through the Part, and kept open with a Rope put through it.

After which we have the Receipt: Or the Ingredients of a Medicine for the speedy Cure of that mortal Distemper amongst Cows; sent over from *Holland*, where a like Distemper raged among the Black Cattel.

Recipe Veronica, Pulmonaria, Hyssopi, Scordii, ana M. iv. Rad. Aristolobiae rotundae, Gentianae, Angelicae, Petasitidis, Tormentillae, Carlinae, ana unc. 12. Bac. Lauri & Juniperi, ana unc. 12. Misc. fiat Pulvis.

Bleed the Cow, and give her three or 4 Mornings successively, an Ounce of this Powder, with a Horn, in warm Beer.

If the Cow continues Distemper'd, after the Omission 2 or 3 Days, repeat the Medicine for 3 or 4 Days again.

I cannot help taking Notice likewise of the raging Distemper which was among the Cows about *London*, Anno 1714. it was so Violent and Infectious, that if one had it, all

others that came within Scent of her, or even eat where she Grazed, were surely infected; it seized their Heads, and was attended with running at the Nose, and a very nauseous Breath, which killed them in three or four Days. The Herdsmen would not allow it to be the *Murrain*, nor could give any Account from whence it did proceed, or could find out any Remedy against it; they only tell us the unusual dry Summer, and the continued *East-Winds*, were the occasion of it. This Distemper had been for two or three Years before it came to us, in *Lombardy*, *Holland*, and *Hambrough*, to the Loss almost of all their Cattle. The States of *Holland* caused a Medicine to be published for the Good of those who had their Cattle thus Distemper'd; but having been try'd here, 'twould not Cure one in seven, but rather increased the Infection by keeping the distemper'd Cattle longer alive (by some Days) than they would have been without it. 'Tis remarkable, that no Oxen had this Distemper, but only *Milch-Cows*, which were more tender than the *Males*. The Herdsmen to keep their Cattle from the Infection, let them Blood in the Tail, and rubb'd their Noses and Chaps with *Tar*; and when any happened to die of it, they were burnt, and buried deep under Ground. It began at *Islington*, spreading it self over many Places in *Middlesex* and in *Essex*, but did not reach so far *Westward* from *London* as twenty Miles.

The

The most general Opinion concerning the Cause of this Distemper, was, that the Cattle were first infected by drinking some unwholesome standing Water, where 'tis probable some Poisonous Insects were lodged and bred; the Summer having been extreamly dry, attended almost constantly with *Easterly* Winds, the Grass almost burnt up, and the Herbs of the Gardens destroyed by Insects; but such as they were, (unfit for Table Use) were given to the Cattle. There was likewise so great want of Water, that many were forced to drive their Cows five or six Miles to it.

The Electuary publish'd upon this Occasion by the States of *Holland*, was compos'd of most, if not all the Drugs used in the most serviceable Medicines that were made use of against the Plague among Men; most of which Ingredients we know to be mortal to Insects, as strong scented Roots and Herbs; but above all, Aromatick Gums and Saps of Plants; as Rhue, Garlick, Pitch, Tar, Frankincense and Olibanum. These Ingredients are much used in *France* and *Italy* to prevent or destroy Infection, by burning them and smoaking such Bodies, Letters, or any other things as are brought from infected Places, after they have made *Quarantain*, and are not suffered to come on Shore 'till they have undergone this Operation.

It is not against Experience, that Insects can live and encrease in Animal Bodies: How often do we find Men, Women and Children troubled with Worms? What Varieties of those Insects are often voided by them? And how should that be, if they were not either suck'd into the Stomach with the Breath, or taken into it with some unwholesome Food? For they cannot breed in such Bodies from nothing, without either their Eggs or themselves are brought thither by some Accident: For if they were the natural Produce of Animal Bodies, they would then be alike common to all, which we know they are not.

I have been informed, that in the Year 1714, when this Mortality among the Cows was at its height, that towards the End of the Summer, some Farmers brought in fresh Cattel, and turning them into the same Fields, where many Cows had died before, they took the Infection and died likewise; but the following Spring those Fields were void of Infection, and the *Cows* that were put into them did very well, but what were then put into the *Cow-Houses*, where the sick *Cows* had been the Year before, were seiz'd with the Distemper, and died; which seems to inform us, that it was the Effect of *Insects*, which thro' the Warmth of those Stalls were preserv'd from the Severity of the Winter's Frost; but such as were left in the open Fields were de-

destroy'd by the Cold. I have heard that a Woman about *Camberwell* cured Six in Seven of her *Cows*, by giving them once a Week an Infusion of *Rhue* and *Ale-wort*.

But it may be ask'd, why these infectious Distempers, subject to Men, Cattle and Plants, are not universal? And why the Plague should not be as well in *India*, *China*, the South Parts of *Africa* and *America*, as in these Parts of the World? (For I do not find it has ever been in those Places.) This Query gives me a farther Opportunity to suggest, that Insects are the Cause of it, and that they are brought with the Easterly Winds. In the first place, so far as I can learn, there is not naturally in *America* any one Kind of Creature or Insect that is found in any other Part of the World, and the Plants likewise are all different from those of other Countries; as it is the same in *India*, *China*, &c. whose Products are quite different from what we find elsewhere. Supposing then that these pestiferous Insects are only the Produce of *Tartary*, let us consider to what Parts of the World they may be carry'd from thence with the Easterly Winds; and whether *India*, *China*, the South of *Africa* and *America*, are not beyond their Reach, or can reasonably be affected by them.

Whoever considers the Disposition of the Land and Water in the Globe, may thus account for the Passage of these Insects, with
an

an Easterly Wind from *Tartary*, to all the Parts of *Europe*, *Asia-Minor*, *Palestine*, *Barbary*, and other South Coasts of the *Mediterranean Sea*; whither, 'tis highly probable, they may come, without meeting any thing in their Way to obstruct their Course.

The best Maps do not lay down any Mountains of Note betwen *Tartary* and the places which have been subject to the Plague: The *Alps* run parallel with the Winds coming from *Tartary*, and therefore does not any Way hinder their Passage: The Mountains of *Dalmatia* are not high enough to prevent the Passage; or if they were, the *Caspian Sea* is sufficiently large to let them pass to the South Parts of *Europe*, the *Mediterranean Sea*, and the North Coasts of *Africa*, even to their most Western Bounds.

Now it may be expected, perhaps, by some, that these Winds should yet continue their Progress as far as *America*; but as yet, so far as I can learn, these Land-Winds, when they have blown with the greatest Force, and have been of the longest Continuance, have not reach'd farther than about three hundred Leagues beyond the Western Coasts of *Europe*, which is a Trifle in Comparison of the vast Ocean between us and *America*: Besides, it is my Opinion, that the Winds which blow over so vast a Tract of Land, as these *Tartarian* Winds must do, that I suppose convey and support the pestiferous Insects, are of so different

different a Nature from the Winds coming from the Ocean, that 'tis likely those Creatures which would subsist in the one, would be destroy'd by the other: So that if I am right in this Conjecture, *America* cannot be subject to the Plague.

Mount-Atlas, which is a vast Ridge of Mountains, running from the Ocean almost as far as *Egypt*, and are back'd with the Deserts of *Lybia*, may very likely obstruct the Passage of these Insects to the South of *Africa*; and for that Reason, perhaps, secure that part of the World from Plagues. So likewise *Mount-Caucasus*, or *Ararat*, which is one of the highest Ridge of Mountains in the World, running from East to West, thro' *Persia* and *India*, may secure the South Parts of those Countries from the Plague, by stopping the Passage of those infectious Creatures, if any Winds from *Tartary* should happen to blow them that Way: And as *China* lies to the East of *Tartary*, so it must be Westerly Winds which must infect that Country with the Plague, if it proceeds from what I imagine: But we do not yet find that Westerly Winds are frequent in those Parts; or if they are, we may be assur'd they cannot blow at the same time when the Insects are hatch'd and carried the contrary Way by the Wind from *Tartary*. We are inform'd, that upon the Coast of *China*, the Winds are so regular, that from *October* to *March* they continually

ally blow from the North-East, and from that Month to *October*, the direct contrary Way.

And Plants are no less subject to be destroyed by Insects, than Men and Quadrupedes, as I have explain'd in the Chapter of Blights, in my *New Improvements of Planting and Gardening*.

Plants of all degrees are subject to Blights, which are so variously communicated to them, that sometimes a whole Tree will perish by that Distemper; now and then a few Leaves, or Blossoms only, and perhaps a Branch or two, will be shrivel'd, or scorch'd by it, and the rest remain green and flourishing. I have yet never observ'd this Disease to happen among Plants, but upon the blowing of sharp and clear *Easterly* Winds, which are most frequent in *England* about *March*; but sometimes happen in other Months. It is very observable, that the *Caterpillars* generally attend these Winds, chiefly infecting some one sort of Tree more than another, and even then not every where upon the kind of Tree they attack, but some particular Branches only; from which Observations I think we may draw the following Inferences, either that the Eggs of those Insects are brought to us by the *Easterly* Winds, or that the Temperature of the Air, when the *Easterly* Winds blow, is necessary to hatch those Creatures, supposing their Eggs were already laid upon those infected Parts of the Trees the preceding Year.

The

The Blights which are attended with large *Worms* or *Caterpillars*, seem to be rather hatch'd with the *East* Wind, than that the Eggs of those Creatures are brought along with it; but those Blights which produce only those small Insects which occasion the curling of the Leaves of Trees, may proceed from Swarms of them, either hatch'd or in the Egg, which are brought with the Wind.

Some perhaps may object, that the *East* Wind is too cold to hatch these Creatures; how comes it then that we find them hatch'd when those Winds reign? Or is it reasonable to conjecture that the same degree of Heat is necessary to enliven an Insect as is required to hatch the Egg of a Pullet? The Insects of *Norway*, *Iceland*, and such like cold Climes, must certainly have less Heat to produce them, than Creatures of the same Race must necessarily have in those Climates which lye nearer to the Sun. Every Creature, without doubt, requires a different Period of Heat or Cold to enliven it, and put it in Motion, which is prov'd by so many known Instances, that I conceive there is no room for any dispute upon that score.

But there may yet be another Question, *viz.* Whether it is not the *East* Wind of it self that blights, without the help of *Insects*? But that may be easily resolved on my side; for that if it was the Wind alone that blighted, then every Plant in its way must unavoidably be infected with its Poison; whereas we find the con-

trary on a single Branch it may be, or some other distinct Part of Plants.

And again, to shew how reasonably we may conjecture that 'tis *Insects* which thus infect the Trees, let us only consider, that every *Insect* has its proper *Plant*, or Tribe of *Plants*, which it naturally requires for its Nourishment, and will feed upon no other kind whatsoever: Therefore 'tis no wonder to see one particular sort of Tree blighted, when all others escape; as for Example, that Wind which brings or hatches the *Caterpillars* upon the *Apple-Trees*, will not any way infect the *Pear*, *Plumb*, or *Cherry* with *Blights*, because, were the Shoals of *Insects* natural to the *Apple*, to light only upon those other Trees mentioned, they would then want their proper Matrix to hatch in; or if they were hatch'd already, they would Perish for want of their natural Food; so that 'tis morally impossible that all sorts of Trees should be blighted at the same time, unless the Eggs of every kind of *Insect*, natural to each Tree, could be brought at one time with the Wind, or that an Easterly Wind could contain in it at once, as many differing Periods of Cold or Heat, as would be requir'd to hatch and maintain each differing kind of those Creatures.

The common People in the Country seem to be of my Opinion, that *Blights* are brought by the East Winds, which they are so well satisfied brings or hatches the *Caterpillar*, that to prevent the too great Progress of *Blights*, it

is common for them when the East Winds blow, to provide large Heaps of Weeds, Chaff, and other combustible Matter on the Wind-side of their Orchards, and set them on Fire, that the Smoak may poison either the *Insects* or their Eggs, as they are pass'd along. By this Contrivance I have often known large Orchards preserv'd, when the neighbouring Parts have suffer'd to the Loss of all their Fruit.

And I have also seen these Fires made with good Success to destroy the *Caterpillars*, even after they were hatch'd, and had began to devour the Trees, by suffocating them, and forcing them to drop to the Ground, where they have been swept up in large Quantities, and kill'd. I have heard it affirm'd by a Gentleman of Reputation, that *Pepper-Dust*, being powder'd upon the *Blossoms* of any Tree, will preserve them from Blights, which may be, because *Pepper* is said to be present Death to every Creature but to Mankind. Now altho' this last Secret is too costly for common Use, yet it may be of Service in some particular Place for the Tryal of a new Tree, where a Taste of the Fruit is desired, and besides it helps to inform us, that Blights are occasion'd by *Insects*, or their Eggs, lodging upon a Plant, and that *Pepper Dust* will not suffer them either to live, or to be hatch'd.

Another Remark (which to me is Demonstration) that Blights proceed from *Insects*, or their Eggs (being brought with the Easterly Winds) was the total Destruction of the *Tur-*
neps,

neps, Ann. 1716, on the West Side of *London*; about *October* we had dry Easterly Winds for a Week or ten Days, and several thousand Acres of *Turneps*, which were then well grown, turn'd Yellow and decay'd, unless in such Places only as were shelter'd by Hedges, Houses, or Trees, where they remain'd Green 'till the *Insects*, which came with the Wind, in about a Week's Time, destroy'd those also. Some Farmers imagin'd that the Birds which were there in great Flocks, had eaten the Leaves of their *Turneps*, and contriv'd all Means possible to destroy them, 'till I convinc'd them that the Birds were rather Friends than Enemies, and came there to feed upon the *Caterpillars*, which were in such great Numbers, that each *Turnep-plant* had not less than a Thousand upon it; and that *Insects* frequently pass in Clouds and numberless Armies after this manner, is plain from several Instances, which have happen'd in my Time, and one of them (I think in *June*, Ann. 1717) passing over *London* were suffocated (I suppose) with the Smoak of the Sea-Coal, and drop'd down in the Streets, insomuch that a square Court belonging to the *Royal Society* was almost cover'd with them; these were of the *Fly Kind*, and fully perfected.

It may be asked, perhaps, how these *Insects* came to destroy the *Turneps* only, and not touch the other Greens of the Fields, as *Cabbages*, *Carrots*, *Parsnips*, and the like? Every Herb has its peculiar *Insect*, like the Trees I have

have mention'd: Nay more than this, the *Insects* which Nature hath design'd to prey upon the Flower of a Plant, will not eat the Leaves, or any other Part of the same Plant. The Leaves of Plants have their *Insects* natural to them, the Bark and Wood likewise have their respective Devourers; and those several *Insects* have other Kinds, which lay their Eggs, and feed upon them.

I could yet give a much larger Account of Animals and Plants, how they have been particularly Infected, but I rather choose to refer my Reader to the Chapter at large, of *Blights and Plagues*, in my *New Improvements of Planting and Gardening*, &c.

By the foregoing Accounts we may observe, that *Mankind*, *Quadrupedes* and *Plants* seem to be infected in the same manner, by unwholsome *Insects*; only allowing this Difference, that the same *Insect* which is poisonous to Man, is not so to other Animals or Plants, and so on the contrary; we observe likewise, that Pepper which is of Use to Mankind, is poisonous to other Creatures, and tho' a Man cannot eat of the *Cicuta*, or *Hemlock*, without prejudice, yet a Cow and some other Animals will eat it to their Advantage; and the *Manchaneſe* Apple, which is deadly Poison to almost every Creature, is eaten greedily by Goats, and which is strange, the Milk of those Goats is wholsome to Mankind. Again, we may remark that *Camphire* which may be taken at the Mouth by the Human Race, and is helpful in
many

many Cases, will destroy *Insects*; for among the Curious who have Cabinets of Rarities, it is a common Practice to lay it in their Drawers and Cases, to destroy the smaller kind of *Insects*, which would otherwise devour their Collections.

The Smoaking of Tobacco is helpful to some Constitutions, but was the pure Leaf to be taken directly into the Stomach, it would Purge in a violent Manner, and the Oil of it as I am told is a deadly Poison; however it is to be remarked, that in the time of the last Plague in *London, Anno 1665*, that Distemper did not reach those who smoak'd Tobacco every Day, but particularly it was judged the best to smoak in a Morning. We have an Account of a famous Physician, who in the Pestilential time took every Morning a Cordial to guard his Stomach, and after that a Pipe or two before he went to visit his Patients; at the same time we are told, he had an Issue in his Arm, by which, when it begun to smart, he knew he had received some Infection, (as he says) and then had recourse to his Cordial and his Pipe, by this means only he preserved himself, as several others did at that time by the same Method. I suppose therefore, that the Smoak of Tobacco is noxious to these Venomous *Insects*, which I believe to be the Cause of the Plague, either by mixing it self with the Air and there destroying them, or else by provoking the Stomach to discharge it self of those Morbid Juices which would nourish and encourage them.

When

When I consider that the dead Bodies of the miserable People of *Marseilles* were found full of *Insects*, and that those Worms could be no way so suddenly killed, as by putting Oil or Lemon Juice upon them, it brings to my Mind several Tryals I have made upon *Insects* of various Kinds, in order to occasion their speedy Death. In these Experiments, I found that most of the larger Kinds would live some Minutes in Spirit of Wine and other spirituous Liquors, when they were forced into them, and that Oil immediately suffocated them, from whence I suppose, the Air, or Breath they draw, is exceeding fine and subtile, and that a thick Air consists of too gross Parts for them to breath, and that since Oil destroys the larger Kinds of them immediately, the Oleagenous Particles evaporating from such Bodies as Oil, Pitch, Tar, &c. expanding themselves, and mixing with the common Air, would render it too thick for the smaller Kinds to subsist in.

We observe likewise that all *Aromatick Herbs*, &c. were found useful in the time of the dreadful Pestilence in 1665, which helps to confirm what I have just now related, for a single Leaf of Rosemary contains at least 500 little Bladders of Oily Juice, which by rubbing, break and afford that grateful Smell we find in that Plant, but in that as in all other *Aromatick Herbs*, was we to bruise the Leaves 'till all those Bladders were broken, the recreating Smell would be lost, and we should find only remaining an earthy, disagreeable Flavour,

G

arising

arising from the common undigested Sap; so if we take the Leaves of Fifty several Kinds of Aromatick Plants, and after bruising them, make up distinctly the bruis'd Leaves of each into Balls, and dry them by the Sun, or otherwise, they will all afford the same Smell; for the breaking of those Bladders, or Blisters, which yield the different Smells (from the Essence they severally contain) makes them lose all their Spirit or Essence.

In the Culture of these Aromatick Herbs, such as *Rosemary, Lavender, Thyme, &c.* we may remark, that they are never destroy'd by any *Insect*, which may still give us a further Proof of the Antipathy all *Insects* have to them, for which Reason some People are used to smoak their Houses with these Aromatick Herbs, but especially where the Chambers or Rooms are small and close; and it has been proved, that the Burning of Aromatick Gums and Woods, have likewise been useful in purifying the Air in a House, and preventing the spreading of Pestilential Distempers.

In 1665 it was observable, that in *Aldermanbury*, and other Places, where there were large Ware-Houses of Aromatick Druggs, the Infection did not reach; so that it seems where there is Quantity enough of such Woods or Gums, as yield a strong Smell, we have no Occasion of burning them, the bare Effluvia rising from a large Mass, having the same Effect as burning a small Quantity. As every one of these Druggs, or Gums, is more pungent or operative
upon

upon the Organs of Smelling, so we may be assured, the Vapour proceeding from them fill a larger Space in the Air; but perhaps a Tun Weight of the strongest Aromatick among them, in the Body or Mass, will not purifie so much Air as half an Ounce of the same will do by burning; for the Smoak of a few Grains of *Tobacco*, when the Air is clear, will sensibly touch the Smell above forty Yards, tho' a Pound of the Herb unburnt will not affect the Smell above a Foot.

These Observations may serve to inform us, that the burning of Aromaticks may help to keep the Air in an healthful State; but as Men of Business must often change their Station, and pass thro' different Degrees and Tempers of Air, it is for that Reason, that Aromaticks, and strong smelling Roots, Herbs, &c. are recommended to be taken into the Stomach. The Cordial which we call *Plague-water*, compos'd of Aromatick Herbs, has been used with Success, as has also been Conserves of *Rhue*, &c. and the Use of *Garlick* in the *Amiens* Distemper, particularly, is remarkable. To this I may likewise add a Relation I had lately from some Men of Quality concerning a *Plague*, which some Years since destroy'd a great part of the *French Army*: It was observable, that at that time the *Irish* Regiments in that Service were preserv'd by rubbing their Bread every Morning with *Garlick*, which undoubtedly must taint their Breath for many Hours, and so regulate the Air about them, that the unwholsome *Insects* could not approach them.

Upon this Occasion, I cannot omit observing the extraordinary Remedy for destroying the Insect call'd the *Wevil* in Corn or Malt, as it was communicated to me by the Learned Dr. *Bentley*, Master of Trinity College, *Cambridge*; that worthy Gentleman tells me, that the Herb *Parietaria*, or *Peletory of the Wall*, is a Sovereign Remedy against the *Wevil* in Corn or Malt; and according to the Information he has had, an Handful of that Plant being laid here and there in a Granary infected by those Insects, will infallibly destroy them in a Day or two; which Discovery is so useful, that I think it ought to be made as publick as possible, and in this place serves to confirm my Hypothesis, That the Effluvia of some Plants are Destructive to Insects.

In the next place I come to consider, how much a certain Quantity of Air is requisite to preserve a single Animal Body, and the Knowledge of that, is what I account one of the chief Preservatives of Health. I have often been concern'd to find a Family of six or seven pinn'd up in a Room, that has not contain'd Air enough for the Maintenance of Health in one single Person; but such is the Hardship of our Poor in many Places, and is frequently the Occasion of their Death.

We may easily conceive how this happens, if we examine the Case of the Diving Tub, how short a while a Man can live it, without a Supply of fresh Air; the occasion of which is, that when he has drawn in with his Breath,

all

all the Groffer Parts from the Air enclos'd in the Tub, the rest grows hot and suffocating, by being too much rarified.

From whence I suppose, a Room of Nine or Ten Foot Cube, will contain Air enough to keep a single Man alive for one Day, but if two were to inhabit that Space for the same time, each would receive but half his Nourishment, and so both would be Sufferers; but a Room, perhaps, containing twice that Space, might well enough serve five People for a Day, supposing that all External Air was kept from Communication with such a Room, during the time the People were in it; for, as I have observ'd, that Air has certain Nourishing Qualities in it, for the Maintenance of Human Life; so when those Nourishing Parts are imbibed, and drawn in by the Lungs, the Air is return'd and flung out as invalid, and cannot be of Use a second Time to the same Person; an Example of which, we find very curiously demonstrated by Mr. *Newyentyte*; he tells us, that in making this Experiment, he discover'd that the same Nourishing Quality in the Air, which is necessary to maintain Human Life, is also necessary to maintain Flame, which he proves thus:

A lighted Candle being set under a Bell, closely fix'd upon a Table, will burn perhaps a Minute or two in Proportion to the Quantity of Air pent up with the Candle in the Bell; but as soon as the Quality in that Air, which is necessary to feed the Flame, is exhausted,

the

the Candle goes out; this has been often try'd with the same Success; and we find, that by letting into the Bell some fresh Air, a little before the Candle should have gone out, it will still continue burning: And then to shew that this Quality in the Air is the same which feeds the Life in Humane Bodies, it was try'd, whether the Air, returning from the Lungs, would not have the same Effect upon the Candle, as the External Air had before, but it had not, the Candle went out at its usual Time: Thus, it seems, when we suck in Air for Breath, the Lungs takes what is necessary for the Nourishment of our Bodies, and returns back the rest.

After this we may naturally conclude, that where the Rooms, or Houses are small, there ought to be frequent Admissions of the External Air, but especially where those Rooms or Houses are too much crouded with People; and if it is supposed that the External Air is Infectious, the burning of *Aromatics*, *Gums*, or *Herbs*, upon the letting in of fresh Air, is necessary.

From the foregoing Observations we may learn, that all Pestilential Distempers, whether in Animals or Plants, are occasion'd by poisonous Insects convey'd from Place to Place by the Air, and that by uncleanly Living and poor Diet, Humane and other Bodies are disposed to receive such *Insects* into the Stomach and most noble Parts; while, on the other Hand, such Bodies as are in full Strength, and are
well

well guarded with Aromaticks, would resist and drive them away, but chiefly how necessary it is to allow the Body a Freedom of Air, and how to correct it if it is Infected.

And I shall conclude with some Memorandums taken from the Papers of a learned Gentleman, who in the time of the late Plague in *London* was curious enough to make his Remarks upon the Signs of that Distemper, and the Method of its Cure.

He tells, the Plague proceeds first from a corrupted and unwholsome Air.

The Second, is putrified Humours, hot Blood, caused by breathing in such corrupt Air; and if the Diet before were perverse, it fills the Body with superfluous Humours.

Concerning the common Fear of Infection, which makes many rich Men, which might and ought to maintain poor visited People; and some Physicians likewise, whose Duty it is to administer Physick to them, flee away, so that in time of great Infection we hear more cry out for want of Bread and necessary means, than for anguish of the Disease.

Hence also came that inhumane Custom of shutting up of Houses that are visited with Pestilence, dejecting their Spirits, and consequently making way for the Disease, and taking Men from their Labour, which is a digester of Humours, and a preserver of Health; and if the Disease be Infectious (as in their Opinion it is) it is plain Murder, to shut Men up in an infected and destroying Air.

But all Mens Bodies are not full of Humours; if they were, all would be infected.

After this I find the following Directions to prevent Infection. *First*, To avoid the Fear of it, and support the Spirits in the next place. *Secondly*, To keep the Body soluble, and to use the juice of *Lemons* often. *Thirdly*, he recommends a Diet of quick Digestion, and to eat and drink moderately:

He

He prescribes likewise the Smell of Aromaticks, such as *Camphire*, *Styrax*, *Calamites*, Wood of *Aloes*, &c. and to be taken inwardly, *Mithridate*, *Angelica*, and *Petasetis*-Roots; and, in an express Manner, he recommends Cleanliness, and the Choice of a clear Air.

After Infection he tells us the Signs are an extraordinary inward Heat, a Difficulty of Breathing, a Pain and Heaviness in the Head, an Inclination to Sleep, frequent Vomiting, immoderate Thirst, a Dryness on the Tongue and Palate; but especially if we discover Risings or Swellings behind the Ears, in the Groin, or other tender Parts of the Body; but this last, where it happens, is of Advantage to the Patient; for he says, in such a Case, the Plague is rarely Mortal, for then Nature has Power to dispel the Venom, and drive it from the most noble Parts; and then he recommends Bleeding; but if Spots appear upon the Body, he advises the Use of *Emeticks*, and afterwards *Sudorificks*, which, by his Papers, we find he gave with good Success, but he decries the Use of Opiates at the Beginning of the Distemper.

He concludes with Directing of proper Cordials, to refresh and strengthen the Patient, such as *Confect. Hyacint. Confect. Alchermes, Pulv. Gasconie, Bezoar Orient.* and such like.

But my Worthy Friend, Sir *John Colebatch*, who has in other Cases declared himself for Publick Good, has, in this, likewise been Careful to provide against the Infection, and especially recommends to his Friends, to collect large Parcels of the Ripe *Ivy Berries* which are known from the others by their Blackness.

Thus have I given my Reader such a View of the *Plague* in general, as may point out to him its natural Cause, Progress of Infection, and the Methods that have been used by the Learned, to prevent the spreading that Terrible Distemper.

191

